

REMARKS

Claims 1-9, 11-14, and 16-44 are all the claims currently pending in this Application. Claims 32-44 are withdrawn pursuant to the Response to Election of Species filed March 15, 2006.

Preliminary Matters

Applicants note that the Examiner incorrectly fails to list claims 32-44 as pending, but withdrawn, on the cover sheet of the current Office Action. With this Response, Applicants include a listing of claims, including withdrawn claims 32-44, for the convenience of the Examiner, and respectfully request acknowledgement of withdrawn claims 32-44.

Allowable Subject Matter

In the current Office Action, the Examiner indicates that claims 8, 9, 11-14, 22, and 27-31 contain allowable subject matter and would be allowed if rewritten into independent form. At this time, Applicants respectfully request that the rewriting of these claims be held in abeyance.

Claim Rejections

Claims 1-4, 17-21, and 23-26 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Adler (U.S. Patent 6,437,312) in view of Sasaki (U.S. Patent 6,954,274). Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Adler in view of Sasaki and Amir (U.S. Patent 5,127,061). Claim 16 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Adler in view of Sasaki and Shipley (U.S. Patent 6,587,600). Applicants respectfully traverse these rejections.

Regarding independent claims 1 and 23, Applicants submit that the cited references, either alone or in combination, fail to teach or suggest “a second plurality of optical elements arranged to acquire height profile information about said surface” (claim 1; see also claim 23, lines 5 and 6). With respect to this limitation, the Examiner advances, at page 3 of the Office Action, that Adler discloses this limitation. However, the Examiner is mistaken. Adler is directed to illumination for inspecting surfaces to acquire accurate *two*-dimensional information for surfaces that have a height dimension. The passage referred to by the Examiner (col. 11, lines 17-30) does not describe any ability of the Adler apparatus to acquire height profile information. Rather, this passage merely describes that the lead frames which are the object to be inspected have a width dimension and a height dimension. This passage does not discuss what aspects of the lead frames are to be inspected. In particular, though this passage discusses that lead frames have a height dimension, there is no discussion in this passage nor any other portion of Adler that the Adler device inspects a height profile or has any capability to do so.

In fact, as noted, Adler inspect a two-dimensional structure of objects that have a height dimension. The height dimension of the lead frames is noted (for example in the passage noted by the Examiner) because Adler aims to provide accurate *two*-dimensional information even though the object has a height dimensional which could potentially disrupt the accuracy of the two-dimensional inspection.

Sasaki describes providing two-dimensional information and height information. However, like Adler, Sasaki fails to teach or suggest the claimed limitation. Sasaki acquires height profile information by illumination from an angle and fails to teach or suggest the claimed

second illumination elements “arranged to illuminate a linear region on said surface from a direction generally perpendicular to said surface” (claim 1; see also claim 23, lines 7 and 8). Moreover, according to Sasaki, the image of the linear illumination region is provided in a region that completely overlaps, rather than “at least partially non-overlapping portions of a single sensor array,” are recited in claim 1. In other words, only a single linear region of light is acquired by the Sasaki sensor at any given moment. Height and two-dimensional information can be extracted by the single line provided to the sensor. However, because only a single line of light is illuminated at any given moment, by definition only a single line cannot reasonably be construed a “partially non-overlapping portions” as recited. Applicants also note that in Figures 10A and 10B of Sasaki, the different lines correspond to image acquisition at different moments in time — not to overlapping image acquisition.

In addition to the above, Applicants submit that one of reasonable skill in the art would not have been motivated to combine Adler and Sasaki as suggested by the Examiner. As discussed above, Adler acquires two-dimensional information about a surface (of a leadframe, for example) using white light. There is no teaching or suggestion in Adler or Sasaki or the generally knowledge of one of skill in the art to combine the Adler apparatus with another reference in order to obtain height information form the same sensor. As discussed above, Adler employs white light illumination. Sasaki employs directional structured light. The optical requirements of a white light system and of a laser system are radically different and it would not be intuitive or otherwise obvious to one of reasonable skill in the art to combine inputs from

white light illumination and laser illumination on the same sensor without any specific teaching to do so.

Therefore, in view of at least the above, Applicants submit that independent claims 1 and 23 are patentable over the cited combination of references. Applicants further submit that neither Amir nor Shipley make up for the above-discussed deficiencies of Adler and Sasaki. Claims 2-9, 11-14, and 16-22 are patentable at least by virtue of their dependence on claim 1. Claims 24-31 are patentable at least by virtue of their dependence on claim 23.

Applicants respectfully request that the rejections of claims 1-7, 16-21, and 23-26 be reconsidered and withdrawn.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/753,391

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